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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,265	09/26/2003	C.P. Vijay Kumar	200311277-1	4938

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EXAMINER

CHAUHAN, LOREN B

ART UNIT	PAPER NUMBER
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2193

MAIL DATE	DELIVERY MODE
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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/670,265

Applicant(s)

KUMAR ET AL.

Examiner

Loren Chauhan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-21 are pending for examination.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. As to claims 1-21 the claims are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

- a. As to claims 1, 16 and 21 the claims are non-statutory as they fail to produce a "useful, concrete, and tangible result." *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F. 3d 1368, 1373-74 (Fed. Cir. 1998). The claims are directed to nothing more than a software per se. The claims fail to provide a useful, concrete, and tangible result of the operation, and thus fail to indicate how the invention accomplishes a practical application.

- b. Claims 2-15 and 17-20 are rejected for similar reasons as discussed for their respective parent claims, as they fail to present any limitations that resolve the deficiencies of the claim from which they depend.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen (US Pat. No 5,634,058) in view of Roth (US 20040237070), and further in view of Roth (US Pat. No. 7,076,647) (hereinafter Roth I).

6. As per claim 1, Allen teaches the invention substantially as claimed including a dynamically loadable stub module, associated with a dynamically loadable kernel module (DLKM), (col. 1, lines 11-12) comprising:

a base stub module (col. 6, lines 39-45);
means for defining DLKM data structures (fig. 6b, col. 6, lines 66-67) and wrapper functions (col. 7, lines 25-28);
means for defining load and unload routines (col. 7, lines 18-21); and
means for generating a dynamically loadable stub module object file (col. 7, lines 59-60).

7. Allen does not teach means for defining metadata structures, means for allowing dynamic loading by DLKM infrastructures.

8. Roth teaches a module developer expresses all of the data describing the module referred to as "module metadata" (page 2 [0021], lines 2-3), but fails to teach means for allowing dynamic loading by DLKM infrastructures.

9. However, Roth I teaches the kmtune command, part of the DLKM infrastructure, allows multiple kernel modules to be configured (col. 2, lines 5-8) and configurable parameters that allow users to customize the behavior of kernel (col. 2, lines 49-50) and to tune their systems without system reboot (col. 2, lines 54-55).

10. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Allen's system by including means for defining metadata and allowing dynamic loading by DLKM infrastructure in Roth and Roth I because by doing so kernel can be reconfigured without rebooting and the reconfiguration of the kernel is greatly simplified (Allen, col. 8, lines 56-58).

11. As per claim 2, Allen teaches the means for defining the DLKM data structures and wrapper functions comprises:

struct mod type_data (fig. 6b; col. 7, lines 2-3);

struct modlink (col. 7, lines 40-42);

struct modwrapper (fig. 8, col. 8, lines 21-22); and

struct mod_operations (fig. 7A, col. 8, lines 32-33).

12. As per claim 3, Allen teaches the means for defining the DLKM data structures and wrapper functions comprises an autoload statement (col. 5, lines 22-24; col. 11, lines 26-30).

13. As per claim 4, Allen teaches the autoload statement comprise statements class, and one of stub funcname retfunc, ustub funcname retfunc argnword, and wstub funcname retfunc (fig. 6C-1, last two lines).

14. As per claim 5, Allen does not explicitly teach the means for defining load and unload routines comprises:

<module_name> _stub_load (); and

<module_name> _stub_unload ().

15. Allen teaches the module sub-system employs a function to load and unload a module (col.7, lines 18-21). It would have been obvious to one of ordinary skill in the art at the time of the invention that the function to load and unload a module as taught by Allen is in fact the load and unload routines.

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16. As per claim 6, Roth teaches the means for defining metadata structures comprises module version, type, definition, states, and loadtime (page 2, [0023], lines 1-4).

17. As per claim 7, Roth teaches the means for defining metadata structures comprises a developer-supplied modmeta file (page 2, [0022], lines 10-13).

18. As per claim 8, Roth teaches the modmeta file is compiled by a modmeta compiler to produce a stub modmeta.c file (page 3, [0033], lines 3-4).

19. As per claim 9, Roth teaches metadata is supplied from the associated DLKM (page 3, [0032], lines 6-7).

20. As per claim 10, Allen does not explicitly teach the dynamically loadable stub module is included in a kernel data space.

21. However, Allen teaches that a set of modules is loaded initially into the kernel (col. 1, line 45). It would have been obvious to one of ordinary skill in the art at the time of the invention that a set of modules loaded in kernel as taught by Allen includes the dynamically loadable stub module.

22. As per claim 11, Allen teaches the dynamically loadable stub module is capable of being statically linked to a kernel executable (col. 3, lines 46-64).

23. As per claim 12, Allen teaches the data structures comprise:

struct mod_stub_modinfo; and

struct mod_stubinfo (fig. 6B, col. 7, lines 2-3).

24. As per claim 13, Allen teaches the stub routines that use the data structures to manipulate stack frames to transfer control from the dynamically loadable stub module to the associated DLKM (col. 6, lines 48-51).

25. As per claim 14, Allen teaches the means for allowing dynamic loading by DLKM infrastructures comprises an ELF section (col. 7, lines 59-60).

26. As per claim 15, Allen does not explicitly teach the associated DLKM is a miscellaneous module.

27. However, Allen teaches that the kernel consists of a plurality of modules including miscellaneous modules (col. 3, lines 27, 31). It would have been obvious to one of ordinary skill in the art at the time of the invention that the kernel having miscellaneous modules include DLKM miscellaneous module.

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28. As per claims 16-20, they are the method claims of claims 1-4 and 7-8, therefore, claims 16-20 have been rejected for the same reason as per claims 1-4 and 7-8 above.

29. As per claim 21, it is the computer readable medium claim of claim 1, therefore, claim 21, is rejected for the same reason as per claim 1.

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Optimizing An Executable Computer Program Having Linkage functions (Hundt US PG-Pub. No. 20030009750).
- Methods for Changing Kernel Tuning Parameters (Chandramouleeswaran US PG-Pub. No. 20030074551).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Loren Chauhan whose telephone number is 571-270-1554. The examiner can normally be reached on Mon.-Thr. 7:30-5:00 (EST).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai T. An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Loren Chauhan
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